



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,472	11/28/2003	Mirjana Popovic	1244.43309X00	7984

20457 7590 09/26/2005

ANTONELLI, TERRY, STOUT & KRAUS, LLP  
1300 NORTH SEVENTEENTH STREET  
SUITE 1800  
ARLINGTON, VA 22209-3873

EXAMINER
----------

SWERDLOW, DANIEL

ART UNIT	PAPER NUMBER
----------	--------------

2646

DATE MAILED: 09/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/722,472

Applicant(s)

POPOVIC ET AL.

Examiner

Daniel Swerdlow

Art Unit

2646

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 1 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the current error signal, the further error signal, the comparing of the error signals, the replacement of the coefficients and the feedback of the current error signal must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Art Unit: 2646

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Applicant admits on page 5 of the disclosure that Fig. 1 depicts prior art. Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities: In the first paragraph on page 10 of the disclosure, applicant equates 2400 samples with 30 ms. At the standard sampling rate of 8000 samples per second, 2400 samples corresponds to 300 ms. Appropriate correction is required.

### ***Claim Objections***

4. Claims 1 and 3 are objected to because of the following informalities:

5. The claims, as written, recite "in the event said current error signal exceeds said further error signal ... replacing said set of default coefficients by said current set of filter coefficients" and "said set of default coefficients is replaced by said current said of filter coefficients ... if said current error signal ... exceeds said further error signal by said threshold amount". As such, the claims are to a method that replaces a set of coefficients resulting in a smaller error with a set

Art Unit: 2646

resulting in a larger error. In other words, the claim is drawn to a device that degrades the performance of the echo canceller. Examiner concludes that this is due to a typographical error and makes prior art rejections based on the interpretation that the recitations are intended as “in the event said further error signal exceeds said current error signal ... replacing said set of default coefficients by said current set of filter coefficients” and “said set of default coefficients is replaced by said current set of filter coefficients ... if said further error signal ... exceeds said current error signal by said threshold amount”. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 through 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mäkinen et al. (US Patent 6,163,609).

8. Regarding Claim 1, Mäkinen discloses an echo canceller (Fig. 3) that receives a reference signal (R\_IN) and converges to an estimated echo signal (EST2) of an input signal (S\_IN) according to a current set of filter coefficients (50b) via feedback of a current error signal (L\_RES2) (column 1, lines 30-34). Mäkinen further discloses: applying a set of main filter coefficients (10b) that correspond to the default coefficients claimed for generating a main filter echo estimate (EST1) that corresponds to the further echo signal claimed; subtracting (20) the main filter echo estimate (EST1) that corresponds to the further echo signal claimed from the

Art Unit: 2646

input signal (S\_IN) to generate a further error signal (L\_RES1); and comparing the current error signal (L\_RES2) with the further error signal (L\_RES1) (Fig. 6, step 270) and in the event that the further error signal (L\_RES1) exceeds the current error signal (L\_RES2) by a threshold (K3), copying coefficients from the background (i.e., current) filter to the main (i.e., default) filter (Fig. 6, step 300).

9. Regarding Claim 2, Mäkinen further discloses the threshold factor (K3) being 0.5 (column 8, lines 27-28). As such, Mäkinen discloses the threshold factor as a voltage ratio of 0.5, which corresponds to a power ratio of 0.25 (because power is proportional to the square of the voltage) and therefore to 6dB (because  $10 \log 0.25 = -6$ ).

10. Regarding Claim 3, Mäkinen further discloses coefficient copying only when a copying counter has reached a count of K4 (Fig. 6, step 290, 300). Mäkinen further discloses a value of K4 being 160 samples and every other sample being counted (column 7, lines 64-65). As such, Mäkinen discloses copying only when the further error signal (L\_RES1) exceeds the current error signal (L\_RES2) by the threshold (K3) for 320 sample periods. At the sampling rate of 8000 samples per second disclosed in Mäkinen (column 9, lines 3-7), this equates to 40 ms. (i.e., at least 30 ms.).

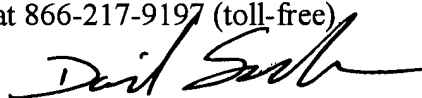
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

Art Unit: 2646

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)



Daniel Swerdlow  
Examiner  
Art Unit 2646

ds  
21 September 2005